Exhibit D

Attorney's Docket No.: 09010-027003 / DIVER1350-2

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Walter Callen et al. Art Unit : 1652
Serial No. : 09/656,309 Examiner : Richard Hutson, Ph.D.
Filed : September 6, 2000
Title : ENZYMES HAVING HIGH TEMPERATURE POLYMERASE ACTIVITY AND METHODS OF USE THEREOF

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

DECLARATION UNDER 37 C.F.R. § 1.132

Sir:

1. I, Walter Callen, am a co-inventor with Eric J. Mathur, on the above-identified patent application.

2. I am an expert in the field of molecular biology and was an expert at the time of the invention. I am presently employed as a research scientist at Diversa Corporation, San Diego, CA, assignee of the above-referenced patent application. My resume is attached as documentation of my credentials.

3. I declare that at the time of the invention it was considered routine by one skilled in the art to make multiple substitutions or multiple modifications in a nucleic acid sequence, such as a polypeptide coding sequence, and screen for functional products (e.g., variant enzymes) encoded by the modified nucleic acids. Thus, it would have been routine for one skilled in the art at the time of the invention to make multiple substitutions or multiple modifications in a polymerase coding sequence and screen for functional variant polymerase enzymes encoded by the modified nucleic acids. For example, by 1996, high through-put *in vivo*

CERTIFICATE OF MAILING BY FIRST CLASS MAIL

I hereby certify under 37 CFR §1.8(a) that this correspondence is being deposited with the United States Postal Service as first class mail with sufficient postage on the date indicated below and is addressed to the Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

7/31/03
Date of Deposit

Jeanne Anne Rice
Signature

Jeanne Anne Rice
Typed or Printed Name of Person Signing Certificate

(e.g., whole cell) nucleic acid expression and screening protocols were well known in the art. In particular, high through-put methods to screen for polymerase activity, such as polymerase chain reaction (PCR), were well known in the art. Accordingly, at the time of the invention it would have been considered routine by one skilled in the art to make multiple substitutions or multiple modifications in a nucleic acid sequence and to screen for functional variations.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Respectfully submitted

Date: 7/22/03

Walter Callen

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PROFESSIONAL EXPERIENCE

Fourteen years of experience in as a molecular biologist in an industrial setting.

Staff Scientist II - Diversa Corporation, San Diego CA. 6/94 - present.
Responsible for the development of screening methods and discovery of novel industrial enzyme clones to fulfill partnership agreements. The overexpression of target enzymes in bacterial hosts. Radiation Safety Officer. Head of Hybridization Department. Supervisor of two technicians.

Research Accomplishments:

- Discovery of over 500 enzyme clones
- Representing over 50% of Diversa's enzyme clones
- Among these are DNA polymerases, esterases, and glycosidases
- Assisted in the screening for dehalogenases, insecticides and bioactive pathway clones
- Utilizing high-throughput screening methods

Senior Research Associate - Stratagene Cloning Systems, La Jolla CA. 8/89 - 6/94.
Responsible for research and development of molecular biological products. Laboratory Manager. Chemical Hygiene Officer.

Research Accomplishments:

- Cloning of six DNA modifying enzymes
- The Clearcut Miniprep kit
- The Cyclist, cycle sequencing kit
- DNA primer synthesis via Hexamer Ligation
- Kb DNA size markers
- ExoMeth sequencing kit

Graduate Assistant - San Diego State University, San Diego, CA. 9/85 - 8/89.
Instructor for college cell biology laboratory course and grading lab reports. Prepared and presented course materials, preparing exams and assigning grades for beginning college biology laboratory course. Responsible for ordering supplies, washing glassware, autoclaving and P1 waste disposal for molecular biology laboratory.

EDUCATION

Master of Science, Molecular Biology. San Diego State University, San Diego, CA. July 1989. Masters Thesis - Molecular Characterization of M308 a Flightless Mutant of Drosophila melanogaster.

Bachelor of Arts, Chemistry. Bachelor of Arts, Biology with emphasis in **Molecular Biology.** Humboldt State University, Arcata, CA. June 1985.

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WO 02/068597 Callen, Walter; Richardson, Toby; Frey, Gerhard; Miller, Carl; Kazaoka, Martin. Enzymes Having Alpha Amylase Activity and Methods of Use Thereof.

AU Patent No. 735082 Callen, Walter; Mathur, Eric. Isolation and Identification of Novel Polymerases.

US Patent No. 6,492,511 Callen, Walter; Mathur, Eric. Isolation and Identification of Novel Polymerases.

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PUBLICATIONS

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Sehgal AC, Callen W, Mathur EJ, Short JM, Kelly RM. Carboxylesterase from Sulfolobus solfataricus P1. Methods Enzymol 2001 330:461-71.

Cady SG, Bauer MW, Callen W, Snead MA, Mathur EJ, Short JM, Kelly RM. Beta-Endoglucanase from Pyrococcus furiosus. Methods Enzymol 2001 330:346-54

Miller ES, Kimberley , Parker N, Liebl W, Lam D, Callen W, Snead MA, Mathur EJ, Short JM, Kelly RM. Alpha-D-galactosidases from Thermotoga species. Methods Enzymol 2001 330:246-60.

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Michael W. Bauer, Lance E. Driskill, Walter Callen, Marjory A. Snead. Eric J. Mathur, and Robert M. Kelly. An Endoglucanase, EglA, from the Hyperthermophilic Archaeon Pyrococcus furiosus Hydrolyzes 8-1,4 Bonds in Mixed-Linkage (1-3), (1-4)-R-D-Glucans and Cellulose. Journal of Bacteriology, 1990. Vol. 181 No.1 pg. 284-290.

K. Kretz, W. Callen, and V. Hedden. Cycle Sequencing. PCR Methods and Applications, 1994. Vol. 3 No. 5 Pg. S107.

W. Callen, V. Hedden, B. Jerpseth, J. Hayfield, J. Braman, and K. Kretz. The Clearcut Kit: A Versatile System for Rapid Plasmid Minipreps, Buffer Exchanges and PCR Cleanup. Strategies in Molecular Biology, 1993. Vol. 6 No. 2.V.

Hedden, W. Callen, J. M. Short, and K. Kretz. Improved Sequence Analysis of Mutations Identified with the Big Blue System. Strategies in Molecular Biology, 1993. Vol. 6 No.1.

K. Kretz, W. Callen, V. Hedden, and M. Kaderli. Improved Primers for the Bluescript Phagemid Vector. Strategies in Molecular Biology, 1993. Vol. 6 No. 1.V.

Hedden, M. Simcox, W. Callen, B. Scott, J. Cline, K. Nielson, E. Mathur, and K. Kretz. Superior Sequencing: Cyclist Exo-Pfu DNA Sequencing Kit. Strategies in Molecular Biology, 1992.Vol. 5 No. 3.

E. Marsh, W. Shoetllin, J. Cline, W. Callen, K. Kretz, and E. Mathur. Pyrococcus furiosus DNA Ligase and the Ligase Chain Reaction. Strategies in Molecular Biology, 1992. Vol. 5 No. 3.

K. Kretz, V. Hedden, and W. Callen. Cyclist DNA Sequencing Kit: Fast, Reliable Sequencing of Inconsistant Templates. Strategies in Molecular Biology, 1992. Vol. 5 No. 2.

E. J. Mathur, M. W. W. Adams, W. N. Callen, and J. M. Cline. The DNA Polymerase Gene from the Archaebacterium, Pyrococcus furiosis, Shows Sequence Homology with Alpha-Like DNA Polymerases. Nucleic Acids Research, 1991 Vol. 19 No. 24 Pg. 6952.

L. Blinderman, W. Callen, C. Katayama. ExoMeth Sequencing: Troubleshooting Superimposed Sequences. Strategies in Molecular Biology, 1990. Vol. 3 No. 3.

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E. Mathur, J. Cline, E. Marsh, W. Shoettlin, K. Nielson, B. Scott, W. Callen, K. Kretz, and J. Sorge. Isolation, Characterization and Cloning of DNA polymerase I and DNA ligase I from the marine hyperthermophile, Pyrococcus furiosis. American Society for Cell Biology Conference. Nov. '92.K.

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